

ABSTRACT OF THE DISCLOSURE  
DIVIDED-VOLTAGE FET POWER AMPLIFIERS

Divided-voltage FET amplifiers (10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 130, 140, 150, 160, 170, 180, 200, or 220) include two or more solid-state current devices, preferably gallium arsenide FETs (Q1, Q2, Q4, Q5, Q6, and/or Q8), connected in series or series-parallel for dc operation, and connected in parallel for rf operation, thereby improving power efficiency by using the same current two or more times to develop rf power. Various ones of the embodiments produce separate rf outputs, separately amplify two rf outputs and subsequently combine them into a single rf output, and/or selectively phase shift rf outputs. Isolation between rf frequencies and dc voltages includes using decoupling capacitors with selected resonant frequencies and low effective series resistances (ESRs) and using inductors with selected self-resonant frequencies for rf chokes. Preferably, providing low ESRs includes paralleling two or more decoupling capacitors (Ca-n) with low ESRs, whose resonant frequencies can be distributed for wide-band operation.